

May 19, 1954

REPORT ON RESEARCH PROJECTS  
for the  
FISCAL YEAR 1953-54

I. Name LED BERG Joshua Dept. Genetics Proj. No. 53: 326  
Title of project Bacterial Genetics

II. Personnel: Helen L. Byers  
Alack Bernstein

III. Statement of other financial support, if any, for this project:

National Institutes of Health: \$ 8 500

Rockefeller Foundation 6 000

IV. Brief statement of specific progress made during the year:

A morphological basis for genetic recombination in *E. coli* has been visualized for the first time. With the proper combination of parents, a few percent of the cells form microscopically visible pairs which remain attached about 1-2 hours. The exconjugants then show a very high incidence of genetic recombinants, supporting previous inferences of a sexual mechanism. In addition, the inheritance of incomplete genetic factors (capable of functioning without reproducing) has been studied in the *Salmonella* transduction system.

V. Publications that have appeared in print from July 1, 1953, to June 30, 1954.

~~Tatum~~ Lederberg, J. and Tatum, E.L., Sex in bacteria: genetic studies, 1945-1952. Science 118: 169-175, 1953  
Stocker, B.A.D., Zinder, N.D., and Lederberg, J., Transduction of flagellar characters in *Salmonella*. Jour. Gen. Microbiol. 9:410-433

VI. Manuscripts accepted for publication but not yet printed:

Nelson, T.S. and Lederberg, J., Post-zygotic elimination of genetic factors in *E. coli*. Proc. Nat. Acad. Sci. U.S., 40:415-419. 1954.

Lederberg, J., Genetics and Microbiology. Rutgers University Institute of Microbiology, Dedication Symposium, In Press.

Lederberg, J., Recombination mechanisms in bacteria. Symposium on Genetic Recombination, Oak Ridge National Laboratory, In Press.

The pink copy should be returned to the Graduate School Office on or before August 1, 1954. The blue copy is for your file.

Cavalli-Sforza, L.L., and Lederberg, J., Genetics of resistance to bacterial inhibitors. Symposium on growth inhibition and chemotherapy, International Congress of Microbiology, Rome. 108-112, 1953  
Lederberg, J., and Edwards, P.R., Serotypic recombination in *Salmonella*. Jour. Immunol. 71: 232-240. 1953